AMENDMENTS TO THE CLAIMS

Please add new claims 26 and 27, as below.

Please amend claims 1-2, 6, 9-11, 15, 17, and 19-22, as follows:

1. (Currently amended) A method for reducing electromagnetic emissions of data signals, said method comprising:

(a) providing a controller having a first input, a modulating circuit, and a first output;

(b) providing a demodulating circuit, having a second input, and a second output;

(c) providing a data pathway between said first output and said second input;

(d) receiving an input data signal at said first input;

(e) repetitively modulating, at said modulating circuit, said input data signal according to a predetermined modulation cycle, in which said modulation cycle comprises at least one modulating pattern set, thereby generating a first output data signal that is directed to said first output;

(f) transmitting said first output data signal from said first output to said data pathway;

(g) receiving said first output data signal from said data pathway at said second input; and

(h) demodulating, at said demodulating circuit, said first output data signal, thereby generating a second output data signal that is directed to said second output, wherein a data content of said second output data signal corresponds to a data content of said input data signal;

wherein said at least one modulating pattern set comprises a set of sideband frequencies that exhibit distinct patterns of electromagnetic energy.

2. (Currently amended) ~~The method as recited in claim 1,~~ A method for reducing electromagnetic emissions of data signals, said method comprising:

(a) providing a controller having a first input, a modulating circuit, and a first output;

(b) providing a demodulating circuit, having a second input, and a second output;

(c) providing a data pathway between said first output and said second input;

(d) receiving an input data signal at said first input;

(e) repetitively modulating, at said modulating circuit, said input data signal according to a predetermined modulation cycle, in which said modulation cycle comprises at least one modulating pattern set, thereby generating a first output data signal that is directed to said first output;

(f) transmitting said first output data signal from said first output to said data pathway;

(g) receiving said first output data signal from said data pathway at said second input; and

(h) demodulating, at said demodulating circuit, said first output data signal, thereby generating a second output data signal that is directed to said second output, wherein a data content of said second output data signal corresponds to a data content of said input data signal;

wherein one of said modulation pattern sets comprises:

counting at least one transition of a predetermined type of said input data signal until reaching a predetermined first numeric value of said at least one transition ~~transitions~~, thereby comprising a first repeat cycle;

after reaching said predetermined first numeric value of said at least one transition ~~transitions~~, repeating the ~~said~~ step of counting said at least one transition of a predetermined type, as a second repeat cycle;

counting each occurrence of reaching said predetermined first numeric value of said transitions for a plurality of ~~said~~ repeat cycles, until a number of said plurality of repeat cycles reaches a predetermined second numeric value; and

terminating said one of said modulation pattern sets ~~set~~.

3. (Original) The method as recited in claim 2, wherein said transition of a predetermined type of said input data signal comprises one of:

(a) a rising edge transition, and

(b) a falling edge transition.

4. (Original) The method as recited in claim 2, wherein said predetermined modulation cycle comprises a plurality of said modulation pattern sets, such that:

for a first modulation pattern set, said first numeric value is CountA, and said second numeric value is RepeatA;

for a second modulation pattern set, said first numeric value is CountB, and said second numeric value is RepeatB, wherein CountA is not equal to CountB, and RepeatA is not equal to RepeatB; and

said first output data signal exhibits a plurality of concentrations of electromagnetic energy having an appearance on a frequency spectrum of a plurality of sidebands near a first frequency of said input data signal, wherein said plurality of sidebands are substantially equal in amplitude to one another on said frequency spectrum.

5. (Original) The method as recited in claim 4, wherein said first modulation pattern set

produces a first set of said plurality of sidebands, and said second modulation pattern set produces a second set of said plurality of sidebands, such that said first and second sets of sidebands exhibit different frequencies for a given frequency exhibited by said input data signal.

6. (Currently amended) ~~The method as recited in claim 1,~~ A method for reducing electromagnetic emissions of data signals, said method comprising:

(a) providing a controller having a first input, a modulating circuit, and a first output;

(b) providing a demodulating circuit, having a second input, and a second output;

(c) providing a data pathway between said first output and said second input;

(d) receiving an input data signal at said first input;

(e) repetitively modulating, at said modulating circuit, said input data signal according to a predetermined modulation cycle, in which said modulation cycle comprises at least one modulating pattern set, thereby generating a first output data signal that is directed to said first output;

(f) transmitting said first output data signal from said first output to said data pathway;

(g) receiving said first output data signal from said data pathway at said second input; and

(h) demodulating, at said demodulating circuit, said first output data signal, thereby generating a second output data signal that is directed to said second output, wherein a data content of said second output data signal corresponds to a data content of said input data signal;

wherein said controller comprises a quadrature signal generation circuit, a processing circuit, at least one register for holding numeric values that are provided for said processing circuit, a plurality of exclusive-OR gates, and a plurality of multiplexers.

7. (Original) The method as recited in claim 1, wherein said controller operates in at least one of a plurality of selectable modes, as follows:

(a) a normal data signal mode without modulation;

(b) a divide-by-2 mode without modulation;

(c) a data signal mode with modulation; and

(d) a divide-by-2 mode with modulation.

8. (Original) The method as recited in claim 1, wherein said demodulating circuit comprises one of: (a) an exclusive-OR gate, and (b) an exclusive-NOR gate.

9. (Currently amended) The electronic controller as recited in claim 1, wherein said

electronic controller includes a processing circuit, and said processing circuit comprises one of:

a logic state machine, a sequential processor device, a parallel processor device, and discrete logic elements.

10. (Currently amended) A method for reducing electromagnetic emissions of data signals, said method comprising:

(a) providing a controller having an input, a modulating circuit, and an output;

(b) receiving an input data signal at said input;

(c) repetitively modulating, at said modulating circuit, said input data signal according to a predetermined modulation cycle, in which said modulation cycle comprises at least two modulating pattern sets, thereby generating an output data signal that is directed to said output;

wherein said at least two modulating pattern sets each comprises a set of sideband frequencies that exhibit distinct patterns of electromagnetic energy.

11. (Currently amended) ~~The method as recited in claim 10,~~ A method for reducing electromagnetic emissions of data signals, said method comprising:

(a) providing a controller having an input, a modulating circuit, and an output;

(b) receiving an input data signal at said input;

(c) repetitively modulating, at said modulating circuit, said input data signal according to a predetermined modulation cycle, in which said modulation cycle comprises at least two modulating pattern sets, thereby generating an output data signal that is directed to said output;

wherein one of said modulation pattern sets comprises:

counting at least one transition of a predetermined type of said input data signal until reaching a predetermined first numeric value of said at least one transition ~~transitions~~, thereby comprising a first repeat cycle;

after reaching said predetermined first numeric value of said at least one transition ~~transitions~~, repeating the ~~said~~ step of counting said at least one transition of a predetermined type, as a second repeat cycle;

counting each occurrence of reaching said predetermined first numeric value of said transitions for a plurality of ~~said~~ repeat cycles, until a number of said plurality of repeat cycles reaches a predetermined second numeric value; and

terminating said one of said modulation pattern sets ~~set~~.

12. (Original) The method as recited in claim 11 wherein said transition of a predetermined type of said input data signal comprises one of:

(a) a rising edge transition, and

(b) a falling edge transition.

13. (Original) The method as recited in claim 11, wherein said predetermined modulation cycle comprises a plurality of said modulation pattern sets, such that:

for a first modulation pattern set, said first numeric value is CountA, and said second numeric value is RepeatA;

for a second modulation pattern set, said first numeric value is CountB, and said second numeric value is RepeatB, wherein CountA is not equal to CountB, and RepeatA is not equal to RepeatB; and

said first output data signal exhibits a plurality of concentrations of electromagnetic energy having an appearance on a frequency spectrum of a plurality of sidebands near a first frequency of said input data signal, wherein said plurality of sidebands are substantially equal in amplitude to one another on said frequency spectrum.

14. (Original) The method as recited in claim 13, wherein said first modulation pattern set produces a first set of said plurality of sidebands, and said second modulation pattern set produces a second set of said plurality of sidebands, such that said first and second sets of sidebands exhibit different frequencies for a given frequency exhibited by said input data signal.

15. (Currently amended) ~~The method as recited in claim 10,~~ A method for reducing electromagnetic emissions of data signals, said method comprising:

(a) providing a controller having an input, a modulating circuit, and an output;

(b) receiving an input data signal at said input;

(c) repetitively modulating, at said modulating circuit, said input data signal according to a predetermined modulation cycle, in which said modulation cycle comprises at least two modulating pattern sets, thereby generating an output data signal that is directed to said output;

wherein said controller comprises a quadrature signal generation circuit, a processing circuit, at least one register for holding numeric values that are provided for said processing circuit, a plurality of exclusive-OR gates, and a plurality of multiplexers.

16. (Original) The method as recited in claim 10, wherein said controller operates in at least one of a plurality of selectable modes, as follows:

(a) a normal data signal mode without modulation;

(b) a divide-by-2 mode without modulation;

(c) a data signal mode with modulation; and

(d) a divide-by-2 mode with modulation.

17. (Currently amended) An electronic controller for reducing electromagnetic emissions of data signals, said controller comprising:

a first input that receives an input data signal;

a modulating circuit, comprising:

a processing circuit that counts a number of transitions of a predetermined type of said input data signal, and that counts a number of repeat cycles of said transitions, and generates a modulation control signal;

a plurality of logic gates and multiplexers that receive said modulation control signal, and said data input signal, and manipulate said data input signal in a manner that generates concentrations of electromagnetic energy emissions near a frequency of said data input signal, thereby creating a first output data signal; and

a first output that transmits said first output data signal;

wherein the concentrations of electromagnetic energy emissions of said first output data signal comprise a set of sideband frequencies that exhibit distinct patterns of electromagnetic energy.

18. (Original) The electronic controller as recited in claim 17, wherein said transition of a predetermined type of said input data signal comprises one of:

(a) a rising edge transition, and

(b) a falling edge transition.

19. (Currently amended) The electronic controller as recited in claim 17, ~~wherein said~~ further comprising a first counter element and ~~said~~ a second counter element that each comprise at least one of:

(a) a hardware counter circuit;

(b) a register that is loaded and unloaded by way of a separate hardware circuit; and

(c) a memory element that is controlled by ~~a~~ said processing circuit.

20. (Currently amended) ~~The electronic controller as recited in claim 17,~~ An electronic controller for reducing electromagnetic emissions of data signals, said controller comprising:

a first input that receives an input data signal;

a modulating circuit, comprising:

a processing circuit that counts a number of transitions of a predetermined type of said input data signal, and that counts a number of repeat cycles of said transitions, and generates a modulation control signal;

a plurality of logic gates and multiplexers that receive said modulation control signal, and said data input signal, and manipulate said data input signal in a manner that generates concentrations of electromagnetic energy emissions near a frequency of said data input signal, thereby creating a first output data signal; and

a first output that transmits said first output data signal;

wherein said controller comprises a quadrature signal generation circuit, a processing circuit, at least one register for holding numeric values that are provided for said processing circuit, a plurality of exclusive-OR gates, and a plurality of multiplexers.

21. (Currently amended) The electronic controller as recited in claim 20, wherein said processing circuit:

operates as a first counter element for counting said transitions of a predetermined type of said input data signal until reaching a predetermined first numeric value of said transitions, and then repeating the ~~said~~ step of counting said ~~edge~~ transitions;

operates as a second counter element for counting a number of repeat cycles of said first counter element reaching said first numeric value, until said number of repeat cycles reaches a predetermined second numeric value; and

thereby completing ~~said~~ a modulation pattern set.

22. (Currently amended) The electronic controller as recited in claim 20, wherein said processing circuit:

operates as a first counter element for counting said transitions of a predetermined type of said input data signal until reaching a predetermined first numeric value of said transitions, and then repeating said step of counting said ~~edge~~ transitions;

operates as a second counter element for counting a number of repeat cycles of said first counter element reaching said first numeric value, until said number of repeat cycles reaches a predetermined second numeric value;

thereby completing a first of said at least one modulation pattern set;

operates as said first counter element for counting said transitions of a predetermined type of said input data signal until reaching a predetermined third numeric value of said transitions, and then repeating said step of counting said ~~edge~~ transitions;

operates as said second counter element for counting a number of repeat cycles of said first counter element reaching said third numeric value, until said number of repeat cycles reaches a predetermined fourth numeric value;

thereby completing a second of said at least one modulation pattern set; and

thereby completing one of said predetermined modulation cycles.

23. (Original) The electronic controller as recited in claim 17, wherein said processing circuit comprises one of:

a logic state machine, a sequential processor device, a parallel processor device, and discrete logic elements.

24. (Original) The electronic controller as recited in claim 17, further comprising: a receiver circuit having a second input and a second output, and a data pathway between said first output and said second input;

wherein (a) said data pathway receives said first output data signal from said first output and directs it to said second input, and (b) said receiver circuit demodulates said first output data signal, thereby generating a second output data signal that is directed to said second output, wherein a data content of said second output data signal corresponds to a data content of said input data signal.

25. (Original) The electronic controller as recited in claim 24, wherein said receiver circuit comprises one of: (a) an exclusive-OR gate, and (b) an exclusive-NOR gate.

26. (New) The method as recited in claim 13, wherein said predetermined modulation cycle further comprises a third modulation pattern set, in which said first numeric value is CountC, and said second numeric value is RepeatC; wherein CountC is not equal to either CountA or CountB, and RepeatC is not equal to either RepeatA or RepeatB.

27. (New) The method as recited in claim 26, wherein the variable values for said predetermined modulation cycle are as follows:

CountA = 3; RepeatA = 2;

CountB = 5; RepeatB = 4; and

CountC = 7; RepeatC = 6.